

REVIEW

Ferns and Fern-allies of Sikkim, A Pictorial Handbook Part-I, by B. S. Kholia, Botanical Survey of India, Sikkim Himalayan Regional Center, Gangtok. 2010. Published by the Botanical Survey of India and Sikkim State Biodiversity Board. Price: Rs. 750/- & US \$ 40. ISBN 978-81-909680-1-0. For information contact Anil Mainra (anil_mainra@yahoo.com) or U. Lachungpa (ulachungpa@gmail.com).

Sikkim is a tiny state (7,096 km²) located in the northeastern part of India. Its habitats stretch from the alpine areas of the high Himalayas (8500 m) to subtropical valleys (300 m) that receive over 500 cm of rainfall per year. It is one of only three ecological hotspots in India. With so many different habitats, it is not surprising that an area only 0.2% that of all of India harbors 50% of India's 1000 pteridophytes. The Sikkim State Biodiversity Board has begun to document the incredible diversity of this area, and assigned the challenge of producing a pictorial handbook to B. S. Kholia who is a very experienced pteridologist and extremely competent photographer. The volume is Part 1 of the documentation of all of the pteridophytes of the state and includes 150 species and over 600 color photographs.

The guide, which is small enough to carry into the field, begins with a very comprehensive description of the characteristics of lycophytes and ferns. Over 90 excellent photographs illustrate various morphological features of ferns. For example there are 25 close-up photos of rhizomes, illustrating many of the types of phyllotaxy and branching possible. While less attention is given to gametophytes, the life cycle is clearly diagrammed illustrating the standard alternation of generations. There is a key to guide the user to the species names, but this would perhaps be more useful when the full flora of 500 ferns species has been illustrated in additional handbooks in the series. The bulk of the book is devoted to some excellent photos and descriptions of the sporophytes. The sequence is alphabetical within genus and family and for each of the 21 families a page corner is marked with a unique color. The text for each species includes habitat, distribution (including elevation), morphological description (including leaf length, which provides scale for the photos) and other notes. Two to four photos of each species show the leaves and sori as well as other key features such as the vegetative propagules that proliferate on the rachis of *Monochosorum henryi*.

The goal of this handbook is to attract the attention of the population of Sikkim and to make it easy for them to appreciate and value the amazing fern diversity there. With its emphasis on beautiful color photos, it should appeal. However sections on edible ferns and other human uses of ferns as well as the conservation threats appear at the back of the book where they can easily be missed. The rationale for caring about ferns could perhaps have been the starting point for the book. Sikkim has the highest percentage of protected lands of all of the Indian states, with 80% under Forest Department

management. However there are still many threats to ferns and their habitats caused by recent increases in population in the area such as cardamom plantations, ornamental harvesting, clearing of forests and water pollution.

This pictorial guide can have international appeal, particularly because of the photos. The author has used the latest taxonomic concepts in naming the ferns thus the handbook can provide a useful supplement to unillustrated floras. It is especially interesting to note the variety of species in genera that are also well-known in North America. Many of the ferns of Sikkim would be hardy in gardens throughout the world. For example, the fledgling horticultural industry in India could focus on the commercial potential for propagating a plant like *Acrophorus paleolulatus*, a fern with 3–4 pinnate leaves up to 1.5 m long that are bright red as they emerge and expand. The book's accessible format would be a good model for state and local floras anywhere. I would recommend this book to anyone who appreciates the worldwide diversity of ferns.—JOANNE M. SHARPE, Sharplex Services, PO Box 499, Edgecomb ME 04556.